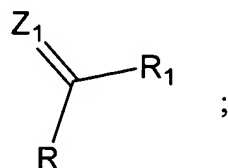


CLAIMS

5 What is claimed is:

1. A pharmaceutical composition comprising a pharmaceutically acceptable carrier or diluent and a compound represented by the following structural formula:

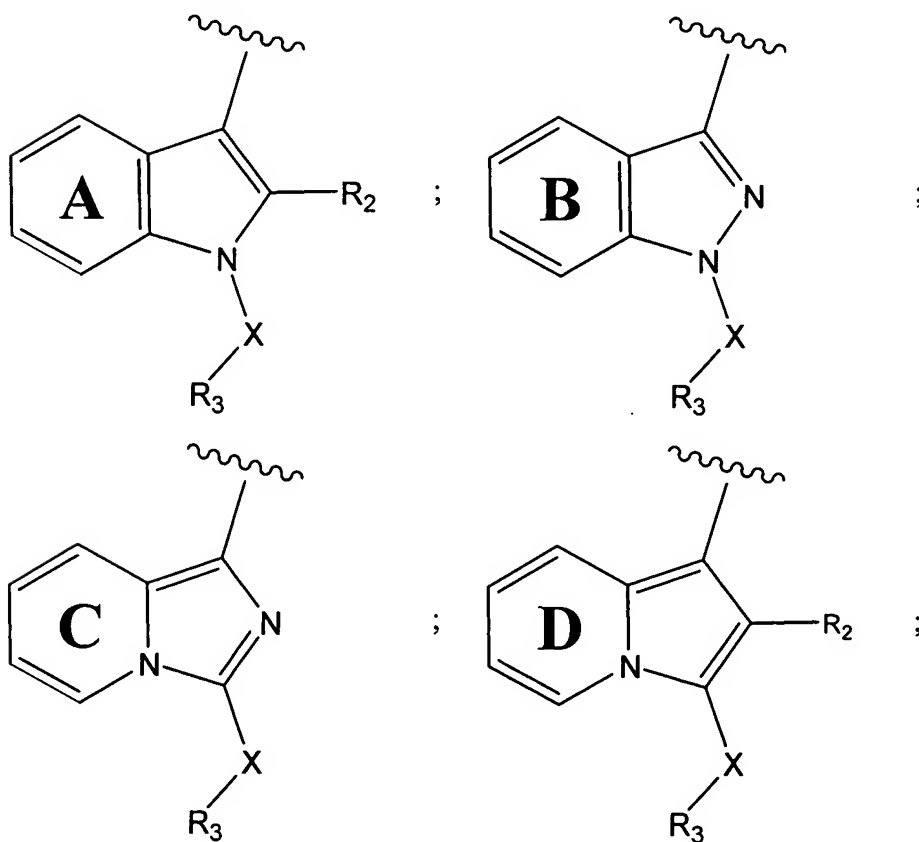


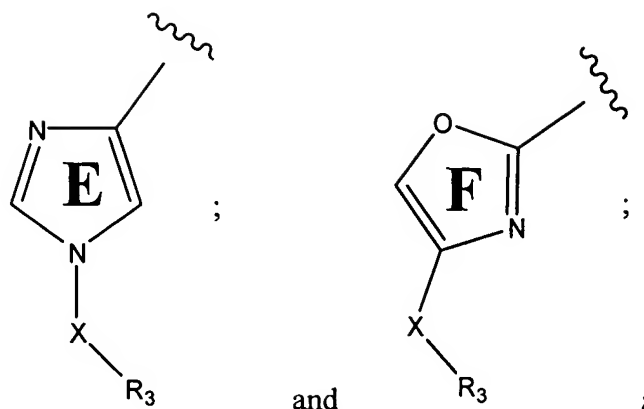
or a pharmaceutically acceptable salt thereof, wherein:

R_1 is a substituted or unsubstituted 2-imidazolyl group which is optionally fused to a substituted or unsubstituted aryl group;

Z_1 is =O, =S, =N-OR₁₁ or =NR₁₁;

R is represented by a structural formula selected from:





Rings **A-F** are independently substituted or unsubstituted and are optionally fused to an aryl group;

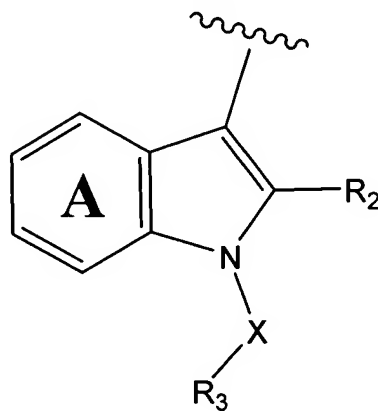
R_2 is -H, a substituted or unsubstituted alkyl group or a substituted or unsubstituted aryl group;

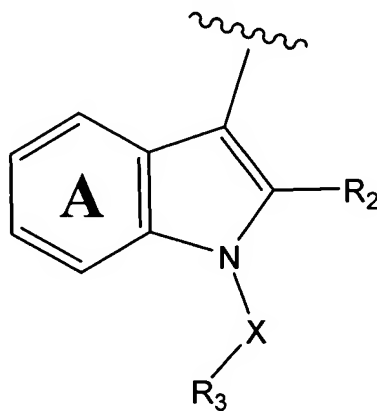
R_3 is a substituted or unsubstituted aryl group or a substituted or unsubstituted aliphatic group;

X is a covalent bond, -C(R_4R_5)-, -N(R_4)-, -O-, -S-, -S(O)-, -S(O)₂-, -C(=O)-, -C(=O)-N(R_4)- or -N(R_4)-C(=O)-;

R_4 and R_5 are independently -H, an aliphatic group or a substituted aliphatic group; and

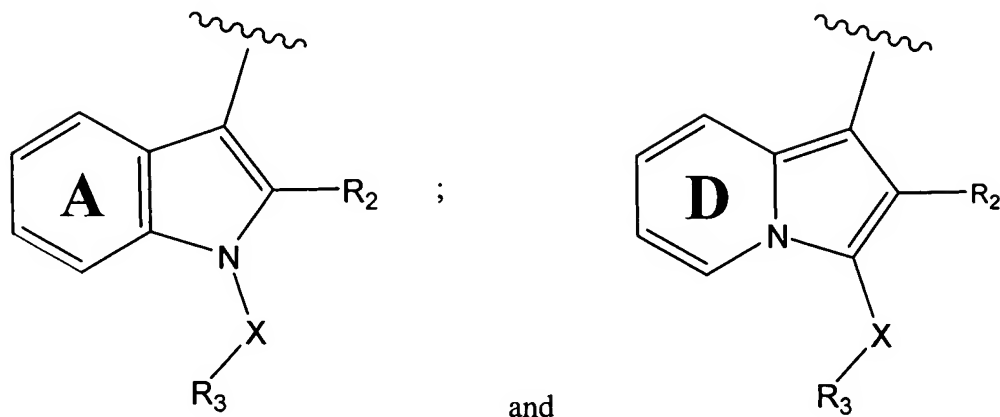
R_{11} is -H or a substituted or unsubstituted alkyl group;



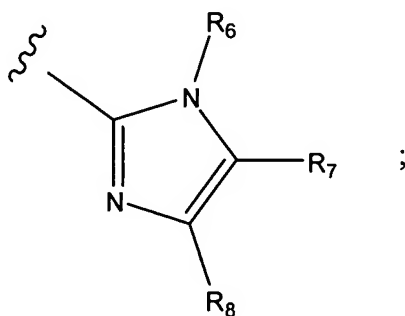
provided that when R is represented by , then X is not -S(O)- or -S(O)₂- and R_3 is not an aliphatic or substituted aliphatic group.

2. The pharmaceutical composition of Claim 1 wherein X is a covalent bond, -C(R_4R_5)-, -N(R_4)-, -O-, C(=O)-, -C(=O)-N(R_4)- or -N(R_4)-C(=O)- and R_3 is a substituted or unsubstituted aryl group.

3. The pharmaceutical composition of Claim 2 wherein R is represented by a structural formula selected from:



4. The pharmaceutical composition of Claim 3 wherein Rings A-F are a substituted or unsubstituted phenyl group; R₂ is -H; Z₁ is =O; and X is -C(R₄R₅)-, -N(R₄)- or -O-.
5. The pharmaceutical composition of Claim 4 wherein X is -C(R₄R₅)-.
6. The pharmaceutical composition of Claim 5 wherein R₁ is represented by the following structural formula:



wherein:

R₆ is -H, an unsubstituted aliphatic group or a substituted aliphatic group,
-C(O)R^g, -S(O)₂-R^g or -S(O)₂-N(R^g)₂;

R₇ and R₈ are independently -H, -OH, -Br, -Cl, -I, -F, -OR^a, -O-COR^a, -COR^a,

-CN, -NO₂, -COOH, -SO₃H, -NH₂, -NHR^a, -N(R^aR^b), -COOR^a, -CHO, -CONH₂, -CONHR^a, -CON(R^aR^b), -NHCOR^a, -NRCOR^a, -NHCONH₂, -NHCONR^aH, -NHCON(R^aR^b), -NR^cCONH₂, -NR^cCONR^aH, -NR^cCON(R^aR^b), -C(=NH)-NH₂, -C(=NH)-NHR^a, -C(=NH)-N(R^aR^b), -C(=NR^c)-NH₂, -C(=NR^c)-NHR^a, -C(=NR^c)-N(R^aR^b), -NH-C(=NH)-NH₂, -NH-C(=NH)-NHR^a, -NH-C(=NH)-N(R^aR^b), -NH-C(=NR^c)-NH₂, -NH-C(=NR^c)-NHR^a, -NH-C(=NR^c)-N(R^aR^b), -NR^dH-C(=NH)-NH₂, -NR^d-C(=NH)-NHR^a, -NR^d-C(=NH)-N(R^aR^b), -NR^d-C(=NR^c)-NH₂, -NR^d-C(=NR^c)-NHR^a, -NR^d-C(=NR^c)-N(R^aR^b), -NHNH₂, -NHNHR^a, -NHR^aR^b, -SO₂NH₂, -SO₂NHR^a, -SO₂NR^aR^b, -CH=CHR^a, -CH=CR^aR^b, -CR^c=CR^aR^b, -CR^c=CHR^a, -CR^c=CR^aR^b, -CCR^a, -SH, -SR^a, -S(O)R^a, -S(O)₂R^a, alkyl groups, substituted alkyl group, non-aromatic heterocyclic group, substituted non-aromatic heterocyclic group, benzyl group, substituted benzyl group, aryl group or substituted aryl group;

R^a-R^d are each independently an alkyl group, substituted alkyl group, benzyl, substituted benzyl, aryl or substituted aryl group, or, -N(R^aR^b), taken together, can also form a substituted or unsubstituted non-aromatic heterocyclic group; and

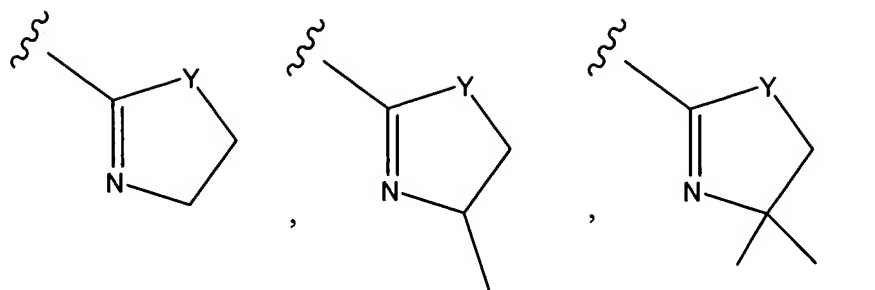
R^g is -H or a substituted or unsubstituted aliphatic group.

7. The pharmaceutical composition of Claim 6 wherein:

R₆ is -H, C1-C4 alkyl, C1-C4 hydroxyalkyl, -(C1-C4 alkylene)-O-(C1-C4 alkylene)-tri(C1-C4 alkyl)silane, -S(O)₂N(C1-C4 alkyl)₂, -S(O)₂NH(C1-C4 alkyl) or -S(O)₂NH₂;

R₇ and R₈ are independently -H, C1-C4 alkyl, C1-C4 hydroxylalkyl, (C1-C4 alkyl)₃-Si-O-(C1-C4 alkylene), pyridyl, C1-C4 alkyl substituted with pyridyl, C1-C4 alkyl substituted with -NH-pyridyl, C1-C4 hydroxyalkyl substituted with -NH-pyridyl, C1-C4 hydroxyalkyl substituted with -pyridyl, -S(O)₂-(phenyl), -S(O)₂-(tolulyl),

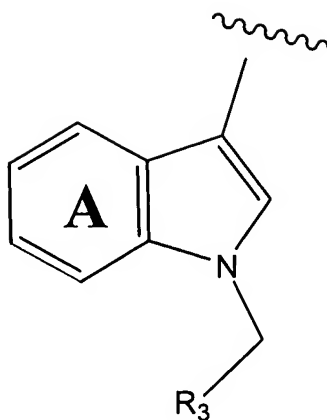
-65-



-C(O)-pyridyl, indolyl, -(C1-C4 alkylene)-O-(C1-C4 alkyl), C1-C4 alkyl substituted with -O-pyridyl, -CHO, -C(O)-O-(C1-C4 alkyl),
 -C(O)-NH-(C1-C4 alkyl), -C(O)-(C1-C4 alkylene)-pyridyl, oxazoliny,
 -C(O)-(C1-C4 alkyl), -C=N-NH-phenyl, -C(O)-NH-pyridyl,
 -C(O)-NH-phenyl, -C=N-NH-(C1-C4 alkyl), -C=N-N-(C1-C4 alkyl)₂,
 -C(O)-NH-(C1-C4 alkyl), -C(O)-N-(C1-C4 alkyl)₂, -C(O)-(N-morpholino),
 -C(O)-imidazolyl, -C(O)-NH-(C1-C4 haloalkyl), -C(O)-N-(C1-C4
 haloalkyl)₂, -CH₂-N₃, C1-C4 alkyl substituted with imidazolyl, -C1-C4
 alkylene-NHC(O)-(C1-C4 alkyl), -C1-C4 alkylene-NHC(O)-(phenyl),
 -(C1-C4 alkylene)-NHC(O)-(tolulyl), -C1-C4-
 alkylene-NHC(O)-(methoxy, dimethoxy or trimethoxyphenyl); and
 Y is -S-, -O- or -N(H or C1-C4 alkyl or substituted alkyl)-.

8. The pharmaceutical composition of Claim 7 wherein R₄ and R₅ are both -H; and R₃ is a substituted or unsubstituted phenyl or pyridyl group.
9. The pharmaceutical composition of Claim 8 wherein Rings A and D are unsubstituted or substituted with one or more groups selected from -F, -Cl, -Br, -C1-C4 alkyl, C1-C4 alkoxy, -C1-C4 haloalkyl, C1-C4 haloalkoxy, -CN and -NH₂.
10. The pharmaceutical composition of Claim 9 wherein R is represented by the following structural formula:

-66-



11. The pharmaceutical composition of Claim 10 wherein:

R_3 is a phenyl or pyridyl group substituted with zero, one or more groups selected from -Br, -Cl, -F, -R^e, -OR^e, -CN, -COOR^e, -N(R^e)₂, -CON(R^e)₂, -NR^eCOR^f, -NHCONH₂ and -SO₂ N(R^e)₂; and each R_e and R_f are independently selected from -H, alkyl, and substituted alkyl.

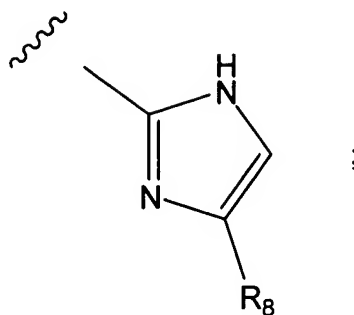
12. The pharmaceutical composition of Claim 11 wherein R_3 is a phenyl group substituted with zero, one or more groups selected from -Cl, -F, -R^e, -OR^e, -CN, -NH₂, -CONH₂, and -NHCOR^f.

13. The pharmaceutical composition of Claim 12 wherein R_3 is a phenyl group substituted with zero, one or more groups selected from -CH₃, -CH₂CH₃, -F, -Cl, -CN and -OCH₃.

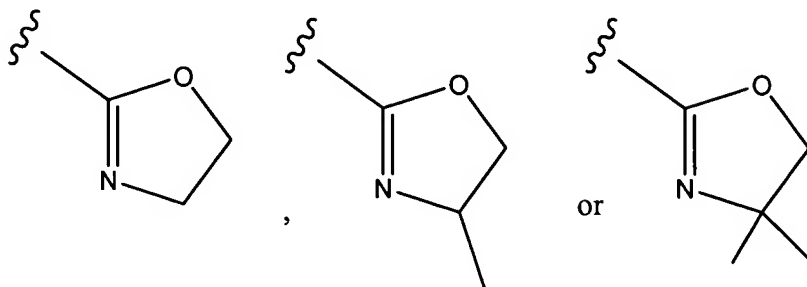
14. The pharmaceutical composition of Claim 13 wherein R_3 is an unsubstituted phenyl group or a phenyl group monosubstituted with -CH₃, -CH₂CH₃, -F, -Cl, -CN or -OCH₃, wherein the phenyl group substituent is at the *para* position.

15. The pharmaceutical composition of Claim 14 wherein R_1 is represented by the following structural formula:

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wherein R_8 is $-C(O)NH_2$, $-C(O)CH_3$, $-C(O)CH_2CH_3$, 2-pyridyl, $-C(O)OCH_3$, $-C(O)OCH_2CH_3$,

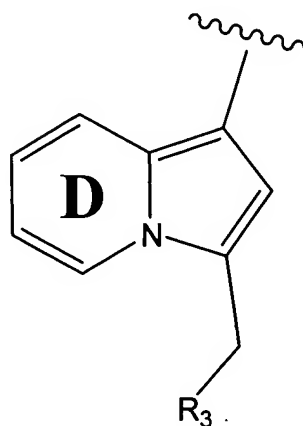


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16. The pharmaceutical composition of Claim 15 wherein Ring A is unsubstituted.

17. The pharmaceutical composition of Claim 9 wherein R is represented by the following structural formula:

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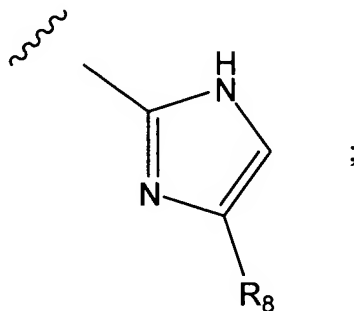
18. The pharmaceutical composition of Claim 17 wherein:

R_3 is a phenyl or pyridyl group substituted with zero, one or more groups selected from $-Br$, $-Cl$, $-F$, $-R^e$, $-OR^e$, $-CN$, $-COOR^e$, $-N(R^e)_2$, $-CON(R^e)_2$, $-NR^eCOR^f$, $-NHCONH_2$ and $-SO_2 N(R^e)_2$; and

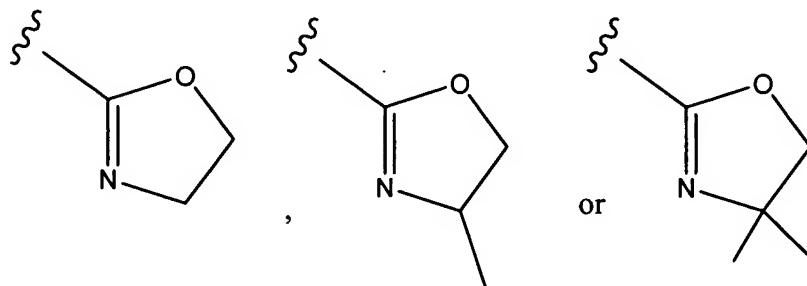
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each R^e and R^f is independently selected from -H, alkyl and substituted alkyl.

19. The pharmaceutical composition of Claim 18 wherein R_3 is a phenyl group substituted with zero, one or more groups selected from -Cl, -F, - R^e , -OR e , -CN, -NH $_2$, -CONH $_2$ and -NHCOR f .
20. The pharmaceutical composition of Claim 19 wherein R_3 is a phenyl group substituted with zero, one, or more groups selected from -CH $_3$, -CH $_2$ CH $_3$, -F, -Cl, -CN and -OCH $_3$.
21. The pharmaceutical composition of Claim 20 wherein R_3 is an unsubstituted phenyl group or a phenyl group monosubstituted with -CH $_3$, -CH $_2$ CH $_3$, -F, -Cl, -CN or -OCH $_3$, wherein the phenyl group substituent is at the *para* position.
22. The pharmaceutical composition of Claim 21 wherein R_1 is represented by the following structural formula:

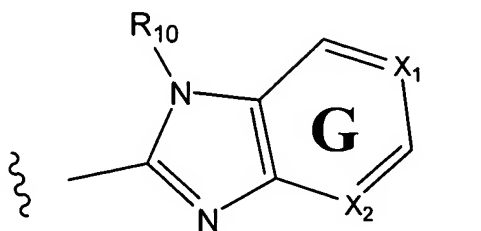


wherein R_8 is -C(O)NH $_2$, -C(O)CH $_3$, -C(O)CH $_2$ CH $_3$, 2-pyridyl, -C(O)OCH $_3$, -C(O)OCH $_2$ CH $_3$,



23. The pharmaceutical composition of Claim 22 wherein Ring **D** is unsubstituted.

24. The pharmaceutical composition of Claim 1 wherein R_1 is represented by the following structural formula:



wherein:

R_{10} is -H, an unsubstituted aliphatic group or a substituted aliphatic group,

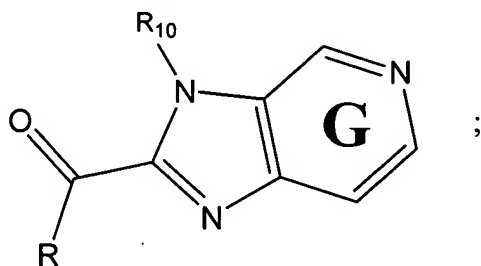
-C(O)- R^g , -S(O)₂- R^g , or -S(O)₂-N(R^g)₂;

X_1 and X_2 are independently -CH- or -N-;

Ring **G** is substituted or unsubstituted; and

each R^g is -H or a substituted or unsubstituted aliphatic group.

25. A pharmaceutical composition represented by the following structural formula:



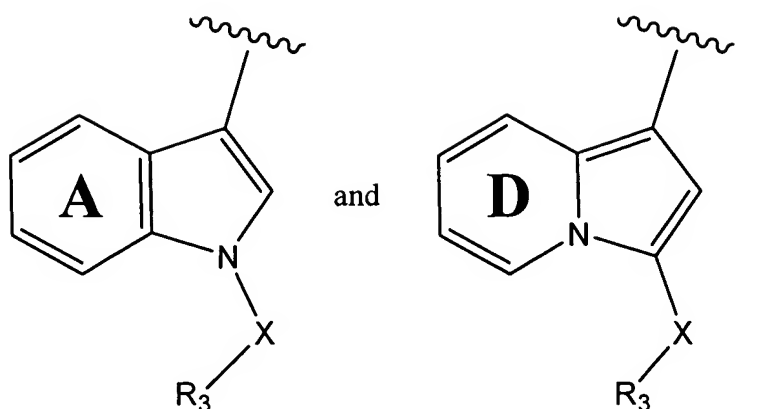
or a pharmaceutically acceptable salt thereof, wherein:

Ring **G** is substituted or unsubstituted;

R_{10} is -H or a C1-C4 alkyl group;

R is represented by a structural formula selected from:

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wherein Rings **A** and **D** are substituted or unsubstituted; X is –
C(R₄R₅)–, –O– or –NR₄–; and R₃ is a substituted or
unsubstituted phenyl or pyridyl group.

5

26. The pharmaceutical composition of Claim 25 wherein X is –C(R₄R₅)–.
27. The pharmaceutical composition of Claim 26 wherein X is –CH₂– and Ring **G** is unsubstituted.

10

28. The pharmaceutical composition of Claim 25 wherein:
Rings **A** and **D** are unsubstituted or substituted with one or more substituents
selected from –F, –Cl, –Br, –C1-C4 alkyl, C1-C4 alkoxy, –C1-C4 haloalkyl,
C1-C4 haloalkoxy, –CN and –NH₂;
R₃ is a phenyl or pyridyl group substituted with zero, one or more groups selected
from –Br, –Cl, –F, –R^e, –OR^e, –CN, –COOR^e, –N(R^e)₂, –CON(R^e)₂,
–NR^eCOR^f, –NHCONH₂ and –SO₂ N(R^e)₂; and
each R^e and R^f is independently selected from –H, alkyl, and substituted alkyl.

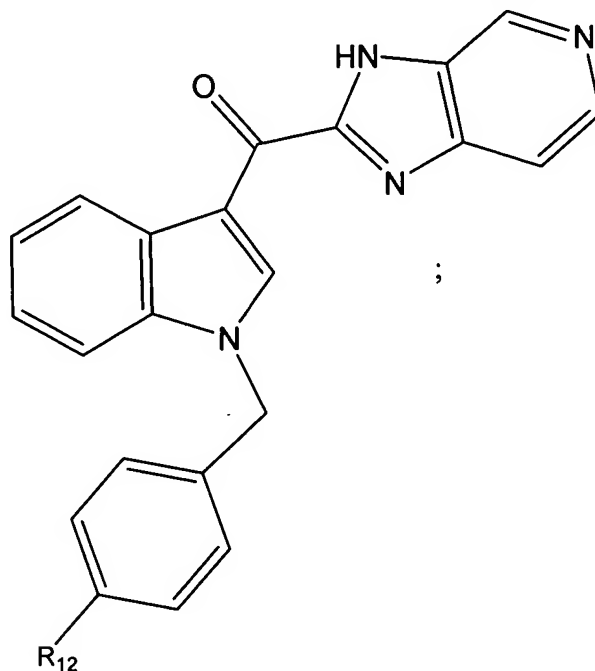
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29. The pharmaceutical composition of Claim 28 wherein R₃ is a phenyl group
substituted with zero, one, or more groups selected from –Cl, –F, –R^e, –OR^e, –CN,
–NH₂, –CONH₂, and –NHCOR^f.

30. The pharmaceutical composition of Claim 29 wherein R_3 is a phenyl group substituted with zero, one or more groups selected from $-CH_3$, $-CH_2CH_3$, $-OCH_3$, $-CN$, $-F$, and $-Cl$.

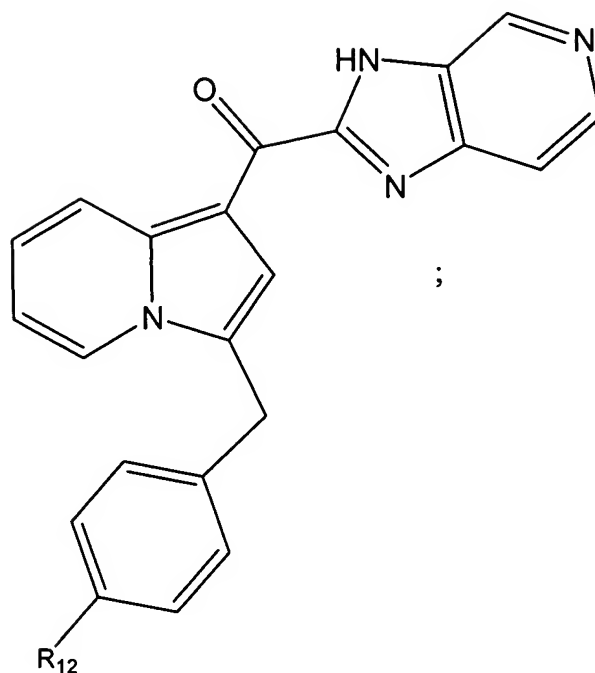
- 5 31. A pharmaceutical composition represented by the following structural formula:



or a pharmaceutically acceptable salt thereof, wherein R_{12} is $-CH_3$, $-CH_2CH_3$, $-OCH_3$, $-CN$, $-F$, or $-Cl$.

- 10 32. A pharmaceutical composition represented by the following structural formula:

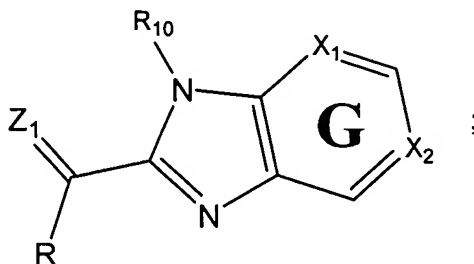
-72-



or a pharmaceutically acceptable salt thereof, wherein R_{12} is $-\text{CH}_3$, $-\text{CH}_2\text{CH}_3$, $-\text{OCH}_3$, $-\text{CN}$, $-\text{F}$ or $-\text{Cl}$.

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33. A pharmaceutical composition represented by the following structural formula:

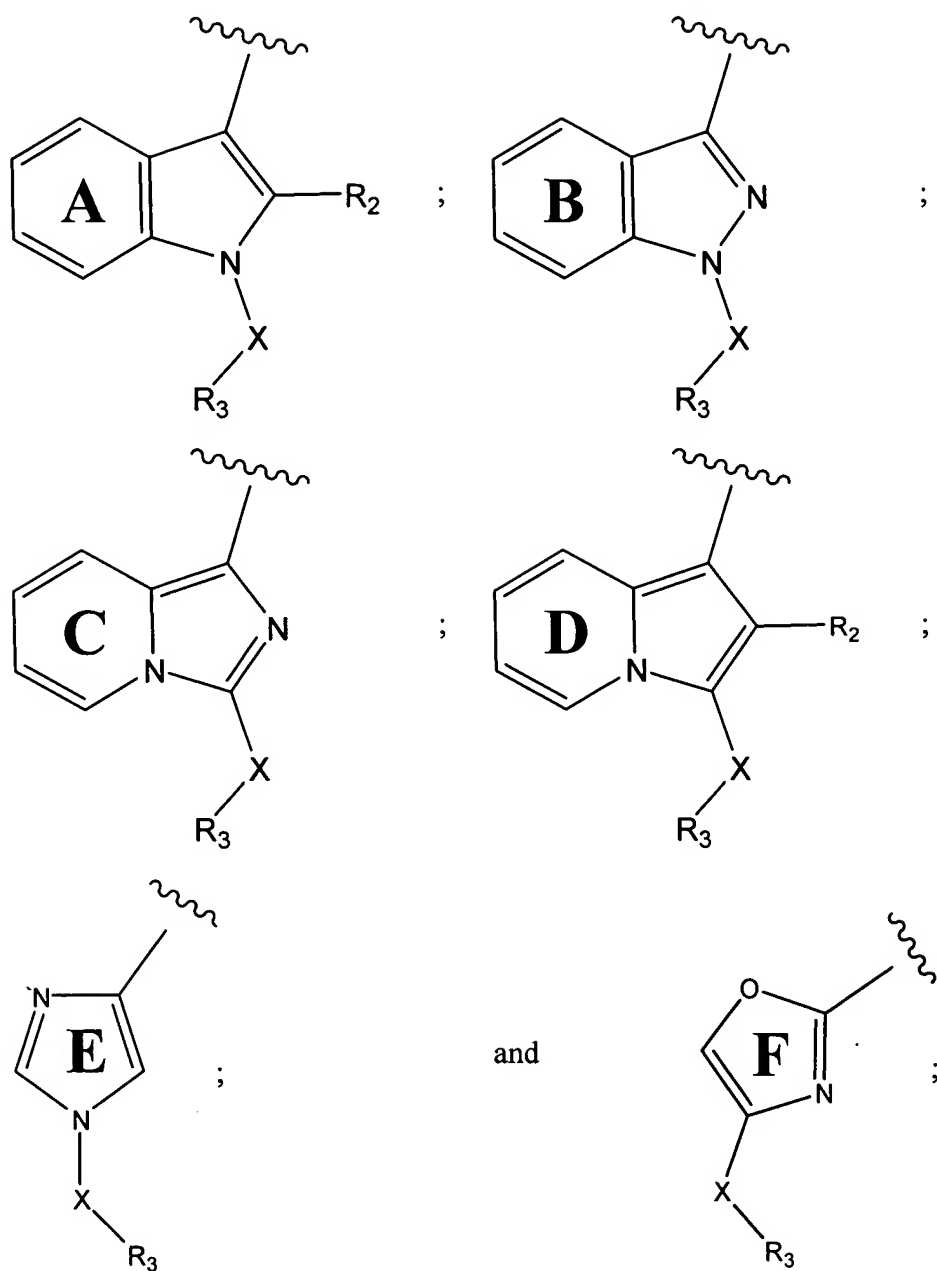


or a pharmaceutically acceptable salt thereof, wherein:

Z_1 is $=\text{O}$, $=\text{S}$, $=\text{NOR}_{11}$ or $=\text{NR}_{11}$

R is represented by a structural formula selected from:

10



5 Rings A-F are independently substituted or unsubstituted and are optionally fused to an aryl group;

R_2 is -H or a substituted or unsubstituted alkyl group;

R_3 is a substituted or unsubstituted aryl group or a substituted or unsubstituted aliphatic group;

10 X is a covalent bond, $-C(R_4R_5)-$, $-N(R_4)-$, $-O-$, $-S-$, $-S(O)-$, $-S(O)_2-$, $-C(=O)-$, $-C(=O)-N(R_4)-$ or $-N(R_4)-C(=O)-$;

R_4 and R_5 are independently -H, an aliphatic group or a substituted aliphatic group;

R_{10} is -H, an unsubstituted aliphatic group or a substituted aliphatic group, -C(O)- R^g , -S(O)₂- R^g , or -S(O)₂-N(R^g)₂;

5 R_{11} is -H or a substituted or unsubstituted alkyl group;

X_1 and X_2 are independently -CH- or -N-;

Ring **G** is substituted or unsubstituted; and

each R^g is -H or a substituted or unsubstituted aliphatic group.